United States Department of Agriculture
Food Safety Inspection Service
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Consumer Complaint
Monitoring System
- An electronic database
  - record, triage, coordinate, and track all consumer complaints reported to FSIS
- Implemented Nov. 2001.
- Goals of CCMS
  - Protection of public health by identifying food hazards
  - Support and augment homeland security

CCMS Provides Agency Wide Support
- Health and Human Sciences Division
  - Identifies potential food hazards, initiates investigations
- Office of Field Operations
  - Compliance Officers/Enforcement Investigations Analysis Officers conduct investigations
- Technical Center
  - Linking trends to establishments, improving programs

CCMS Provides Agency Wide Support
- School Lunch Program
  - Complaints involving FSIS Regulated product entered into CCMS
  - Work in conjunction with the outbreak branch and state/county health officials
- Provide service to FNS and AMS
  - Example: identified area in contract related to bone size that could be altered to prevent injury to students
- Analyzing data elements/systems utilized by FNS/AMS
  - Establish bi—directional flow in communication
  - Collect information that will aid in trace-back investigations

CCMS Data
- Data Enters CCMS Primarily through OFO and Hotline
  - CO/EIAO's are ultimately responsible for clarifying data
- SOP's for following through complaints
  - located on the CCMS tool bar
- HHSD controls access to the CCMS
  - Increases security

Current Consumer Complaint Monitoring System
- Successful tool in the coordination of case investigations throughout the United States and its' territories
- Current search capabilities allow identification of similar complaints through: product brand, product name, and establishment number

Case Study
- Three complaints received in the CCMS
  - Within three days
  - Est. XYZ
  - Same product, Same Lot
- Illness, not lab confirmed
  - Onset time and symptoms same
- Ready to Eat Product
  - Consult with Micro, product tested for LM
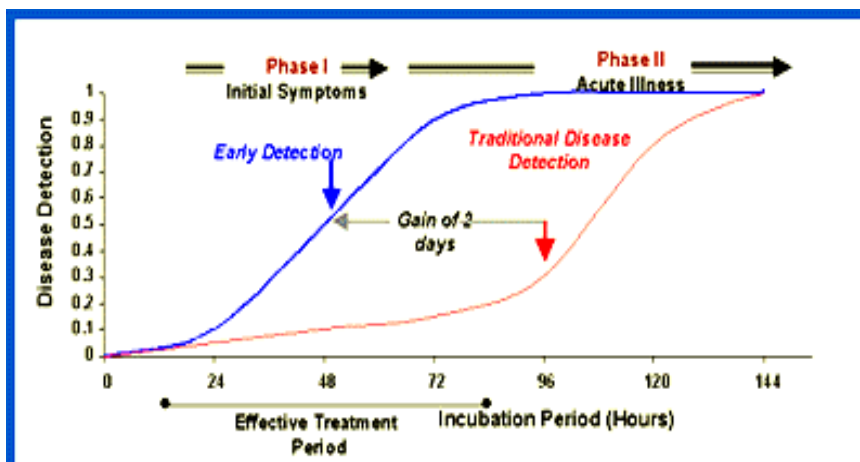- Product positive for LM
- Product Recalled

What have we learned?
The Value of Time in Epidemics
- Under the right circumstances, epidemics can spread quickly
- The world is smaller as we become more global
- Traditional surveillance depends on lab confirmation

DARPA
http://www.darpa.mil/iao/BSS.htm

The "Act"

- The tragic events of September 11, 2001 forever changed the way we look at the world around us.
- The Consumer Complaint Monitoring System will support title III of the Bioterrorism Act which President Bush signed into law on June 12, 2002.

Informatics Challenges of the Current Consumer Complaint Monitoring System
- Multiplicity of database systems that do not communicate at all or not well
- Receipt of data from states and laboratories is not timely
- Cumbersome navigation overwhelming
- System not using state-of -the -art technology

System Goals
- *Increase* the ability to harness relevant information from complaints
- *Provide* graphical pictures of analysis and interpretation of data
- *Support* the FSIS district offices' local response
- *Disseminate* information between FSIS, State Health Departments, Tech Center and the CDC
- *Collaboration* with e-Health initiative

Information System Functions Necessary for Public Health Preparedness and Response
- Preparedness requires that all partners are part of systems
- Surveillance data analysis--event detection and management
- Notification--rapid alerting
- Communication- information sharing (State Health Departments, Laboratories, CDC, Recall)

System Platform will be Based on NEDSS
- NEDSS is a CDC initiative that uses national data and information system standards
  - http://www.cdc.gov/nedss
- NEDSS provides tools that can provide for the electronic data transfer between state health departments and Consumer Complaint Monitoring System
- Security standards (HIPAA compliant)

Once We Collect Data, What to Do With It?
- Detect abnormalities
- Gain actionable intelligence
  - **What models are needed to harness intelligence?**
    - **Time Series Modeling**
    - **Spatial/Geo-temporal Modeling**
    - **Bayesian Modeling**
    - **Active learning model**
    - **ARMIA models**
- http://www.biomedcentral.com/1472-6947/3/2

How will we eliminate noise?
- Train field officers on collecting clean data
- Use exponential, linear, and moving average filters
- Identify confounders and noise

In Conclusion
- The Consumer Complaints Monitoring System will adopt and implement standards-based, integrated, interoperable information technology to enhance public health practice
- Computational and detection algorithms will contribute intelligence to a decision support system
- This will result in progress towards identifying food hazards in commerce

A Hopeful Future